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opposite orientations respectively; and

a bearing portion connected to said shaft and said base for supporting said shaft upon rotation of said shaft.

4. (Amended) The magnetic bearing assembly according to Claim 1, wherein each of said upper magnetic portion and said lower magnetic portion includes a first magnetic ring, a second magnetic ring and a third magnetic ring.

Please add the following new claims:

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16. (New) A magnetic bearing assembly, comprising:
a magnetic portion connected to a shaft and a base for generating a repulsive magnetic field, wherein said magnetic portion includes a first magnetic ring, a second magnetic ring and a third magnetic ring that are disposed in axial alignment with each other to have opposite polar disposition; and
a bearing portion connected to said shaft and said base for supporting said shaft upon rotation of said shaft.

17. (New) The magnetic bearing assembly according to Claim 16, wherein said magnetic portion further includes an upper magnetic portion.

18. (New) The magnetic bearing assembly according to Claim 17, wherein said upper magnetic portion includes an inner magnetic ring and an outer magnetic ring.

19. (New) The magnetic bearing assembly according to Claim 17, wherein said inner magnetic ring and said outer magnetic ring are disposed in radial alignment with each other to have like polar disposition.

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20. (New) The magnetic bearing assembly according to Claim 16, wherein said first magnetic ring and said third magnetic ring are connected to the shaft and said second magnetic ring is connected to said base.

21. (New) A magnetic bearing assembly, comprising:
a magnetic portion connected to a shaft and a base for generating a radially repulsive magnetic field and an axially repulsive magnetic field; and
a bearing portion connected to said shaft and said base for supporting said shaft upon rotation of said shaft.

22. (New) The magnetic bearing assembly according to Claim 21, wherein said magnetic portion includes an upper magnetic portion and a lower magnetic portion.

23. (New) The magnetic bearing assembly according to Claim 22, wherein said upper magnetic portion and said lower magnetic portion are disposed symmetrically and each includes a first magnetic ring, a second magnetic ring and a third magnetic ring.

24. (New) The magnetic bearing assembly according to Claim 22, wherein said lower magnetic portion includes a first magnetic ring, a second magnetic ring and a third magnetic ring that are disposed in axial alignment with each other to have opposite polar disposition.

25. (New) The magnetic bearing assembly according to Claim 22, wherein said upper magnetic portion includes an inner magnetic ring, and an outer magnetic ring that are disposed in radial alignment with each other to have like polar disposition.

REMARKS

The present invention discloses a magnetic bearing assembly including a magnetic portion connected to a shaft and a base for generating repulsive magnetic fields that are both a radially repulsive magnetic field and an axially repulsive magnetic field, and a bearing portion connected to the shaft and the base for supporting the shaft upon rotation of the shaft. In order to more distinctly claim the present invention, claims 1 and 4 have been amended and claims 16 to 25 have been added. Claim 1 has been amended to combine the subject matter of claims 1, 2, 3 and 4. Additionally, claims 1, 8 and 11 have been combined to form the added claim 16, with the "radial" alignment limitation amended to "axial" alignment as suggested by the Examiner. It is understood from paragraph 12 of the Official Action that this subject matter is considered to be allowable. Furthermore, added claims 17-25 are provided to recite other aspects of the invention which are considered to patentably distinguish over the prior art.

The drawing objections are believed to have been overcome by the above-noted newly presented claim 16.

After reviewing the patents to Hidehiko, Weilbach, Huang, and Mochizuki, applicants believe that the amended claims 1-25 are patentable over the cited references for the following reasons.

REJECTION UNDER 35 U.S.C. § 102

The Examiner rejected claims 1-3 and 12-15 under 35 U.S.C. 102(b) as being clearly anticipated by either Hidehiko (J.P. Patent No. 55-112419; hereinafter, Hidehiko) or Weilbach (U.S. Patent No. 5,019,738; hereinafter, Weilbach).

The Examiner also rejected claims 1, 2, and 12-15 under 35 U.S.C. 102(e) as being clearly anticipated by Huang et al. (U.S. Patent No. 6,265,798; hereinafter, Huang).

Comparing the present invention with Hidehiko, the amended independent claims are not anticipated, taught or suggested by Hidehiko. Hidehiko relates to magnetic repulsion means 7 that is formed by a pair of rings 8, 9 which are fitted loosely to the rotor shaft 5 and each magnet

8, 9 is magnetized toward the axial direction of the center hole and their same poles are arranged oppositely with each other (Fig. 3; lines 3-5) to allow the rotor to be axially positioned at the center between the bearing of both sides. However, the present invention provides a magnetic bearing assembly for providing both a radially repulsive magnetic force and an axially repulsive magnetic force to reduce the friction between the shaft and the sleeve bearing upon rotation of the shaft. From the above comparisons, it is apparent that the present invention, as defined in the claims of record, is not anticipated, taught or suggested by Hidehiko, and is patentable over Hidehiko.

Comparing the present invention with Weilbach, the amended independent claims are not anticipated, taught or suggested by Weilbach. Weilbach relates to a self-pressurizing gas supported bearing which includes a lower end of shaft 46 coupled to an annular magnet assembly 52 which forms a part of an axial thrust bearing assembly and which also includes non-rotating annular magnets 54 and 56. Magnets 52, 54 and 56 are positioned with opposing poles to create magnetic repulsion forces both above and below rotating magnet 52. (Fig. 3; col. 4, lines 44-50) Actually, magnets 52, 54 and 56 only provide one axial repulsive magnetic force but not both a radially repulsive magnetic force and an axially repulsive magnetic force. Therefore, it is apparent that the present invention as defined in the claims of record is not anticipated, taught or suggested by Weilbach, and is patentable over Weilbach.

Comparing the present invention with Huang, the amended independent claims are not anticipated, taught or suggested by Huang. Huang relates to a magnetic bearing of a motor comprising a first element 61 and a second element 62. Each of the poles between the first element 61 and the second element 62 is an S pole so that the two elements are repulsive to each other. (Fig. 3; col. 3, lines 26-29) Actually, the first element 61 and the second element 62 only provide one axial repulsive magnetic force but not both a radially repulsive magnetic force and an axially repulsive magnetic force. Therefore, it is apparent that the present invention is not anticipated, taught or suggested by Huang, and is patentable over Huang.

From the above comparisons, applicant submits that the present invention is patentable over the cited references to Hidehiko, Weilbach, and Huang.

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Finally, it would never be obvious for one skilled in the art to modify Hidehiko in view of Weilbach, Huang or Mochizuki to arrive at the present invention. In summary, the present invention is distinguishable over Hidehiko through Mochizuki.

Favorable reconsideration by the Examiner, withdrawal of the rejections, and formal notification of the allowability of all claims are solicited.

Respectfully submitted,



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